

# Unit Planning Guide: Grade \_3\_ Unit \_2\_ of \_\_\_\_

Unit Title: Relationship Between Multiplication and Division	Pacing (Duration of Unit): 5 weeks
Grade: 3	Buffer Day(s): 3

## Desired Results

### Transfer Goals

Students will be able to independently use their learning to:

- MP.1: Make sense of problems and persevere in solving them.
- MP.2: Reason abstractly and quantitatively.
- MP.3: Construct viable arguments and critique the reasoning of others.
- MP.4: **Model with mathematics.**
- MP.5: Use appropriate tools strategically.
- MP.6: **Attend to precision.**
- MP.7: Look for and make use of structure.
- MP.8: **Look for and express regularity in repeated reasoning.**

### Established Goals (2011 MA Curriculum Frameworks Standards Incorporating the Common Core State Standards)

#### Prerequisite Standards:

- 2.OA.3: Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
- 2.OA.4: Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

<p><b>Standards (Priority Standards in bold):</b></p> <ul style="list-style-type: none"> <li>• <b>3.OA.1:</b> Interpret products of whole numbers, e.g., interpret <math>5 \times 7</math> as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as <math>5 \times 7</math>.</i></li> <li>• <b>3.OA.2:</b> Interpret whole-number quotients of whole numbers, e.g., interpret <math>56 \div 8</math> as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. <i>For example, describe a context in which a number of shares or a number of groups can be expressed as <math>56 \div 8</math>.</i></li> <li>• <b>3.OA.3:</b> Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.</li> <li>• 3.OA.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 \times ? = 48</math>, <math>5 = \_ \div 3</math>, <math>6 \times 6 = ?</math></i></li> <li>• 3.OA.5: Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) <i>Examples: If <math>6 \times 4 = 24</math> is known, then <math>4 \times 6 = 24</math> is also known. (Commutative property of multiplication.) <math>3 \times 5 \times 2</math> can be found by <math>3 \times 5 = 15</math>, then <math>15 \times 2 = 30</math>, or by <math>5 \times 2 = 10</math>, then <math>3 \times 10 = 30</math>. (Associative property of multiplication.) Knowing that <math>8 \times 5 = 40</math> and <math>8 \times 2 = 16</math>, one can find <math>8 \times 7</math> as <math>8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56</math>. (Distributive property.)</i></li> <li>• 3.OA.6: Understand division as an unknown-factor problem. <i>For example, find <math>32 \div 8</math> by finding the number that makes 32 when multiplied by 8.</i></li> </ul>	<p><b>WiDA Standards (ELL)</b></p> <p>Standard 1: ELLs <b>communicate</b> for <b>Social</b> and <b>Instructional</b> purposes within the school setting</p> <p>Standard 3: ELLs <b>communicate</b> information, ideas and concepts necessary for academic success in the content area of <b>Mathematics</b></p> <p>In the lesson planning stage, teachers will need to differentiate lessons for ELLs. In order to accomplish this they will need: 1.) this curriculum map, 2.) a list of their ELLs and their proficiency levels, and 3.) appropriate language function expectations and scaffolds or supports.</p>
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### Meaning (\*Mostly assessed through Performance Tasks/Assessments)

<p><b>Big Ideas:</b> (Statements and concepts written in teacher friendly language which reflect the important [but not obvious] generalizations we want students to be able to arrive at. These are used by the teacher to focus daily instruction.)</p> <ul style="list-style-type: none"> <li>• Multiplication and division are inverses; they undo each other.</li> <li>• Multiplication is repeated addition.</li> <li>• Multiplication is commutative, but division is not.</li> <li>• Division is fair sharing or repeated subtraction.</li> <li>• The solution to division is how many in 1 group.</li> </ul>	<p><b>Essential Questions:</b> (Questions which frame ongoing and important inquiries about the big ideas. They are written for students and used in daily instruction to help engage students in meaningful thinking.)</p> <ul style="list-style-type: none"> <li>• How are addition and multiplication related?</li> <li>• How are subtraction and division related?</li> <li>• How are multiplication and division related?</li> <li>• How can the same array represent multiplication and division?</li> </ul>
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Acquisition (*Mostly assessed through traditional summative assessments)	
<p><b>Knowledge:</b> Key basic concepts, facts, and key terms (written in phrases) students should be able to recall independently.</p> <p>Students will know ...</p> <ul style="list-style-type: none"> <li>• That multiplication and division are inverses</li> <li>• Multiplication is repeated addition</li> <li>• Division is repeated subtraction</li> <li>• That division is “how many in one box/group?”</li> </ul> <p style="text-align: center;"><b>Key Academic Vocabulary</b></p> <p>array, associative property, commutative property, dividend, division, divisor, factor, multiplication, product, quotient, unknown</p>	<p><b>Skills:</b> The discrete skills and process students should be able to use independently (<u>Bloom’s Level of Learning should be noted in parentheses.</u>)</p> <p>Students will be skilled at:</p> <ul style="list-style-type: none"> <li>• Modeling multiplication and division as arrays</li> <li>• Modeling multiplication as repeated addition</li> <li>• Using the number line to multiply and divide</li> <li>• Determining how many/much in each group (partition or fair-sharing), given the total amount and the number of equal groups.</li> <li>• Determining how many groups of the same size can be created (measurement or repeated subtraction), given the total amount and the amount in a group.</li> <li>• Solving word problems using multiplication and division within 100</li> </ul>
<p><b>Resource Suggestions:</b></p>	